

ABSTRACT OF THE DISCLOSURE

An apparatus for measurement of strain in a material. The apparatus comprises a passive fiber optic ring; at least one sensor having a predetermined shape and in line with the fiber optic ring, the at least one sensor coupled to the substrate; coupling means for i) introducing a portion of radiation emitted by the coherent source to the passive fiber optic ring and ii) receiving a portion of the radiation resonant in the passive fiber optic ring; a detector for detecting a level of the radiation received by the coupling means and generating a signal responsive thereto; and a processor coupled to the detector for determining a level of the strain inducing into the substrate based on a rate of decay of the signal generated by the detector.